



Version Showing Changes Made to Claims

14. (Amended) A clad-pumped, double clad, fiber laser, comprising:
one or more cores disposed within a pump cladding;
each core doped with a rare earth lasing ion;
each core having an oblong cross section;
there being either (a) [a single core or (b)] a central core and additional
cores disposed outwardly of said central core, oriented in an array along a line
inclusive of the center of said cladding with their long axes perpendicular to said
line and with an equal distance between the centers of adjacent cores or (b) a
single core;
thereby to [provide] generate, when optically pumped, a single linearly
polarized TE₀ mode output laser beam.



Response to Interview Summary

In the phone interview on September 27, 2002 with Supervisor Ip, applicant's attorney requested of Supervisor Ip that Supervisor Ip intervene with Examiner Nguyen because it appeared that Examiner Nguyen was having difficulty with the English language. Attorney wanted to be sure that "oblong" would be given its usual meaning, rather than the meaning the Examiner had stated in a prior phone interview. Further, Attorney believed that the statement "Applicant's intended to use misleading language in the claim to claim the invention" is further indication that the Examiner has a difficult time with English because it is clearly an insult to the Attorney. Supervisor Ip replied that it was he, not the Examiner who put that statement in the rejection. Asked by Attorney whether he thought that statement was an insult, Supervisor Ip replied that he did not. Attorney stated it is an insult and perhaps Supervisor Ip does not understand English very well. Supervisor Ip then said the Attorney's statement was prejudicial and tried to break off call. Attorney requested assurance of proper handling of the application; Supervisor Ip said it is always so and will be so this time. The interview then ended.

Remarks

This Amendment is responsive to the Office Action of October 23, 2002. Claim 18 having been found allowable if in independent form, claims 14-17 and 19-21 remain for further consideration.

1. Withdrawal of the previous Final Rejection is noted with gratitude.
- 2,3. Claims 14-17 and 19-21 are rejected as being indefinite. The examiner confuses the second clause of subelement (b), that is, "oriented in an array...of adjacent cores" as being applicable to subelement (a). In order to prevent the examiner taking that construction of claim 14, claim 14 has been amended to put the single core last, and thereby render it impermissible to construe that the "oriented in an array..." language would be applicable to a single core. Therefore,

reconsideration of claim 14, as amended to prevent erroneous construction, over the -112 rejection is hereby respectfully requested.

In claims 16 and 17, it is alleged "It is unclear **substantially** meant, which render the claims confusing, vague and indefinite." MPEP 2173.05(b)(D) approves language such as "substantially equal E and H plane illumination patterns"; such language is definite because "one of ordinary skill in the art would know what was meant by 'substantially equal'". Furthermore, the term means "largely but not wholly that which is specified." Webster's Ninth New Collegiate Dictionary, 1176 (9th Ed. 1983). See York Products Inc. v. Central Tractor Farm & Family Center, 99F. 3d 1568, 40 U.S.P.Q. 2d 1619, 1622 (Fed. Cir. 1996). The word is broadly recognized as used in patents, along with other words such as "approximately" and "about" to prevent potential infringers from avoiding literal infringement simply by making a minor modification. The language is acceptable; the rejection should be withdrawn.

4-6. Claims 14, 15 and 20 are rejected as obvious over DiGiovanni et al (DiGiovanni) in view of Keck. The first sentence of the rejection, describing DiGiovanni, appears to be correct. The second sentence, that DiGiovanni does not disclose an oblong core is also correct. The third sentence, that Keck discloses an oblong core is also correct. The last sentence, however, is entirely erroneous for several reasons.

First of all, Keck discloses and is totally concerned with an optical wave guide, and not a laser. There is no pump cladding in Keck, nor is it contemplated. The parameters of the optical wave guide of Keck are totally different than those in either DiGiovanni or in claim 14 herein. Specifically, Keck has a cladding surrounding the core "having a refractive index greater than that of the core glass." (Column 3, lines 47-49). In contrast, in DiGiovanni, "FIG. 2 schematically shows the refractive index (n) of exemplary fiber 10 as a function of radius R, wherein numeral 12' refers to the core index and numerals 11' and 13' refer to the refractive index of the second and first cladding regions, respectively." And, in Fig.

2 of DiGiovanni, the refractive index indicated as 12' is more than double that of the cladding indicated as 11' or 13'. In other words, in DiGiovanni, the refractive index of the core is much greater than the refractive index of the cladding, just the opposite of that in Keck. Similarly, in page 5 of this application, at lines 11-14: "According to the invention, the cores 21 are provided with an index of refraction which is less than the index of refraction of the core 20 as illustrated by the bars 21a and 20a, respectively, in Fig. 2....Naturally, the pump cladding 22 has a much lower index of refraction as illustrated by the bar 22a." Thus, a clad pump laser requires that the cladding have a significantly lower index than the core. Keck does not have that. There is, therefore, no reason to suspect that one should visit the disclosure of Keck in order to learn how to modify that which is disclosed by DiGiovanni. Stated simply, there is no suggestion to combine the references as required in MPEP 2145(j)(3). Further, there is no motivation in DiGiovanni to modify it in the first instance (MPEP 706.02(j); 2143). Furthermore, Keck teaches away from the invention, in that Keck is attempting to create stress-induced birefringence for the purpose "that the propagating optical signal retain the polarization characteristics of the input light in the presence of external depolarizing perturbations." (Column 1, lines 17-19). Thus, Keck's purpose is to retain whatever polarization is present, which would include orthogonally polarized components of waves (column 1, lines 37 and 38), in contrast with claim 14 which requires provision of "a linearly polarized output laser beam." Specifically, the support for claim 14 is found on page 8, lines 8-20, which states that the TE_0 mode will predominate in the core because of its higher refractive index (the opposite of that in Keck) and due to lower losses in the core, over a long fiber length, "only the TE_0 mode can survive." Since Keck seeks to enhance all polarizations, Keck is irrelevant to a claim which results in a single polarization.

There is no suggestion in Keck that use of an oblong core can result in a pump laser with a linearly polarized output as called for in claim 14. Keck teaches the opposite, seeking to preserve both orthogonal components of any waves

received. Furthermore, Keck does not teach anything with respect to clad pumped lasers, and cannot teach modification of a clad pumped laser because Keck has a core with an index of refraction which is lower than the cladding. MPEP 2143.01: "Although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so' In Re Mills, 916 F2d 680, 16 U.S.P.Q. 2d 1430 (Fed. Cir. 1990) **"FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH PRIMA FACIE OBVIOUSNESS"**.

The statement in the final sentence of the rejection, "For the advantageous of the cladding pump, it would have been obvious...to provide DiGiovanni with the core having an oblong cross section as taught or suggested by Keck" is not supported by the disclosure of Keck, and is contrary to the lack of any suggestion or motivation to combine the two, and is contrary to the fact that Keck seeks an opposite result to that set forth in claim 14.

The third inquiry for determining obviousness (paragraph 5 of the rejection, relating to the level of ordinary skill in the pertinent art) should take into account the teaching of Scifres, which is applied to claims 16, 17, 19 and 21 in paragraph 7, hereinafter. Therein, the core regions 51a - 51e cited against claim 21 hereinafter, are described as "used to form a line of imaged laser light spots, e.g., for laser cutting applications." Thus the level of ordinary skill in the art suggests that a series of rectangular cores aligned with each other would provide a series of spots, and not provide for a single linear polarization from the device. This is evidence which should be considered with respect to claim 14.

Claim 14, as amended, is limited to the TE_0 mode, not taught by the references.

For all the foregoing reasons, reconsideration and allowance of claim 14 over the two references is hereby respectfully requested.



The remaining claims depend from claim 14 and are patentable for the same reasons. Therefore, reconsideration and allowance of claims 15 and 20 is hereby requested.

7. Claims 16, 17, 19 and 21 are rejected as obvious over DiGiovanni in view of Keck, further in view of Scifres. The inappropriateness of the rejection of claim 14 is set forth hereinbefore. Claims 16, 17, 19 and 21 depend from claim 14 and are patentable for the same reasons.

With respect to claim 19, the regions 51a - 51e of Scifres are said "to form a line of imaged laser light spots, e.g., for laser cutting applications" and therefore teach nothing with respect to a linearly polarized output.

For all the foregoing reasons, reconsideration and allowance of claims 16, 17, 19 and 21 over all three references is hereby respectfully requested.

Respectfully submitted,

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